



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,743	06/30/2003	Douglas E. Fain	S-92,821	2559
48589	7590	05/26/2005	EXAMINER	
ROBERT POTEAT, P.C. 1092 W. OUTER DRIVE OAK RIDGE, TN 37830			FULLER, ERIC B	
			ART UNIT	PAPER NUMBER
			1762	
DATE MAILED: 05/26/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/611,743

Applicant(s)

FAIN ET AL.

Examiner

Eric B. Fuller

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant has added the limitation of the membrane being a ceramic membrane and argues that the zeolite membrane of Funke et al. has different pore structures than the oxide, nitride, and/or carbide ceramic membranes of present invention. However, these alleged differences are not claimed. Applicant further alleges that these differences would translate into fundamental different approaches to solving the problem. This argument is not found convincing. Funke explicitly teaches that the zeolite is alumina silicate (column 1, line 58). This reads on being a ceramic membrane, which is all that the claims require. The approach the applicant uses in solving the problem of reducing pore size does not carry patentable weight when Funke anticipates each and every limitation of the claim. Because the arguments have not been found convincing, the examiner maintains the rejections based on Funke.

Applicant has further amended the claims such that the limitations of claim 1 have been incorporated into claim 4. This has been sufficient in overcoming the rejections based on Levy et al. or McMillian et al. as primary references, as these references were not used in the rejection of claim 4. These rejections have been withdrawn accordingly. The rejections based on Funke that are still applicable are shown below.

### ***Claim Rejections - 35 USC § 102***

Art Unit: 1762

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-10, 16, 17, and 22-24 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Funke et al. (US 6,051,517).

The claimed process is disclosed at col. 4, lines 20-50, col. 4, lines 60-68, col. 7, lines 10-15, 25-30, and 60-65, col. 8, lines 30-45, col. 9, lines 1-3 and 35-50, col. 10, lines 21-55 and col. 11, lines 34-38. It is noted that the pore sizes disclosed in the examples after deposition of the layers are in the claimed ranges.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funke et al. (US 6,051,517).

Funke teaches the limitations of claim 4, as shown above, but does not explicitly disclose coating only one side of the membrane, such as by placing the membrane on a holder. However, because the purpose of the membranes disclosed in the above references is to filter material, which involves passing a medium through the membrane to allow some material to pass through based on the adjusted pore size and such passing through is only usually performed from a single direction through the filter to

Art Unit: 1762

avoid dislodging trapped material filtered out by the membrane, it would have been obvious to coat only the inflow side of the filter to adjust the pore size thereof because that is the side at which filtration is performed and coating only one side would have the clear advantages of saving process time and cost by coating only one side as opposed to both sides.

Claims 11-13 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Funke et al. (US 6,051,517) in view of Levy et al. (US 5,789,024).

Funke teaches the limitations to claim 9, as shown above, but does not explicitly disclose a gamma alumina or alumina membrane. However, because Levy discloses that it is desirable to decrease the pore size of alumina membranes by depositing inorganic compounds thereon (col. 7, line 23), it would have been obvious to have coated an alumina membrane by the process of Funke with a reasonable expectation that doing so would successfully provide an alumina membrane having an adjusted pore size to tailor its filtration properties.

### ***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks, can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

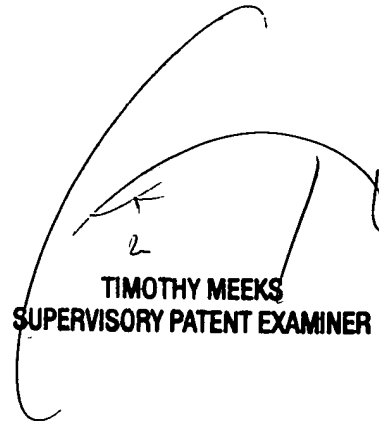
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/611,743

Page 6

Art Unit: 1762

  
EBF

  
TIMOTHY MEEKS  
SUPERVISORY PATENT EXAMINER